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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/778,071	02/07/2001	Takashi Takeuchi	202937US2S	7369

22850 7590 09/11/2002

OBLON SPIVAK MCCLELLAND MAIER & NEUSTADT PC
FOURTH FLOOR
1755 JEFFERSON DAVIS HIGHWAY
ARLINGTON, VA 22202

EXAMINER

RAMANA, ANURADHA

ART UNIT	PAPER NUMBER
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3751

DATE MAILED: 09/11/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/778,071

Applicant(s)

TAKEUCHI ET AL.

Examiner

Anu Ramana

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment: See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 3 and 9 is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☒ Claim(s) 9 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☒ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

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DETAILED ACTION

Drawings

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: “444.” A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference sign(s) not mentioned in the description: 440a, 440, and 445. A proposed drawing correction, corrected drawings, or amendment to the specification to add the reference sign(s) in the description, are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

The disclosure is objected to due to the following informalities.

On Page 15, lines 17 and 19: backing member “25” should be backing member “20.”

Claim Objections

Claim 9 is objected to due to the use of “GND”; “GND” should be “ground.”

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 10 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention, see line 12 “having a pitch width than the width of” is confusing. Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

Claims 8 and 10 are rejected under 35 U.S.C. 102(e) as being anticipated by Gilmore.

Gilmore discloses a method of manufacturing an ultrasonic transducer (see Figure 6a and col. 3, lines 53-65).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Saitoh et al. in view of Lewandowski et al.

Saitoh et al. disclose an array-type ultrasonic probe having a plurality of piezoelectric elements 1 wherein each piezoelectric element is constructed of a piezoelectric single crystal, for example lead titanate (col. 2, lines 36-40), with an upper electrode layer 4 and a lower electrode layer 5. Composite piezoelectric members of the 1-3 or 2-2 type are well known.

Saiton et al. do not disclose upper and lower resin layers.

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The use of conductive resins to form an electrically conductive surface or layer is known (see col. 4, lines 64-68 of Lewandowski et al.)

Accordingly it would have been obvious to one of ordinary skill in the art at the time the invention was made to have provided an electrode layer 4 and a lower electrode layer 5 wherein the electrode layer is made of resin, such as a conductive resin, to provide a conductive surface.

Further, excellent cutting characteristics and lower acoustic impedance relative to the piezoelectric element are inherent properties of resins.

Claims 4,5 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Greenstein in view of Gilmore.

Greenstein discloses a method of manufacturing a piezoelectric member wherein a block piezoelectric material is attached to a backing member or resin layer 16 (see col. 4, lines 3-4, lines 35-42, lines 53-59 and lines 60-68). Greenstein further discloses a plurality of kerfs (col. 4, lines 65-68).

Greenstein does not disclose filling the plurality of kerfs with resin.

Gilmore teaches filling kerfs with a resin, for e.g. epoxy as a damping material to block and absorb the transmission of vibrations between adjoining elements (col. 1, lines 9-28 and col. 2, lines 44-50).

Accordingly it would have been obvious to one of ordinary skill in the art at the time the invention was made to have filled the plurality of kerfs with a damping material such as epoxy resin as taught by Gilmore to block and absorb the transmission of vibrations between adjoining elements.

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Greenstein in view of Gilmore further in view of Briskin et al.

Greenstein discloses a method of manufacturing (supra).

Greenstein does not disclose the step of polishing.

Briskin et al. teach polishing as a step in the method of making ultrasonic transducer elements (see col. 5, lines 42-44) to remove unwanted materials and imperfections.

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Accordingly it would have been obvious to one of ordinary skill in the art at the time the invention was made to include a step of polishing in view of the implicit teachings of the Briske et al. reference to remove unwanted materials and imperfections in the device.

Allowable Subject Matter

Claims 3 and 9 are allowable.

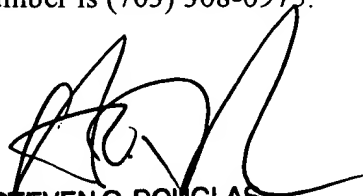
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anu Ramana whose telephone number is (703) 306-4035. The examiner can normally be reached on 8:30 am to 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory Huson can be reached on (703) 308-2580. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9302 for regular communications and (703) 872-9303 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0975.

AR
September 6, 2002



STEVEN O. DOUGLAS
PRIMARY EXAMINER